



Azul-DOD ESI Catalog:

Moving from Oracle JDK to Azul OpenJDK

Since 2007, the Java Development Kit (JDK) has been available as open-source through OpenJDK (openjdk.java.net). Sun Microsystems, the creator of Java, initiated this project and the source code for all releases from JDK 6 onwards have been provided here. The OpenJDK source code is the same code used by Oracle to build its binary distribution of the JDK.

Azul provides an alternative OpenJDK binary distribution. This is built from the OpenJDK source code and is functionally equivalent to the Oracle JDK. Azul runs the same Technology Compatibility Kit (TCK) tests on all binaries to ensure they conform to the Java SE specification, as defined through the relevant Java Specification Request (JSR) produced by the Java Community Process (JCP). The TCK consists of over 150,000 tests, which exercise all areas of the TCK.

Azul has been on the JCP Executive Committee since 2011 and a member of the JCP Java SE Expert Group since JDK 9. Azul is also a member of the OpenJDK vulnerability Group. This is a closed group (that does not publish any of its communications) created by Oracle to ensure other OpenJDK binary distributions would have access to relevant security patches. The group, that also includes other OpenJDK providers like IBM, SAP, Red Hat and Amazon, works collaboratively to develop fixes for security vulnerabilities identified in the JDK.

Zulu Enterprise is the commercial offering from Azul that provides an identical service to that offered by Oracle for Java support.

Specifically: Updates to the JDK delivered at the same frequency as Oracle updates, i.e. quarterly in January, April, July and October. In the event of an out-of-bounds update being required to address a critical security issue that is also provided.

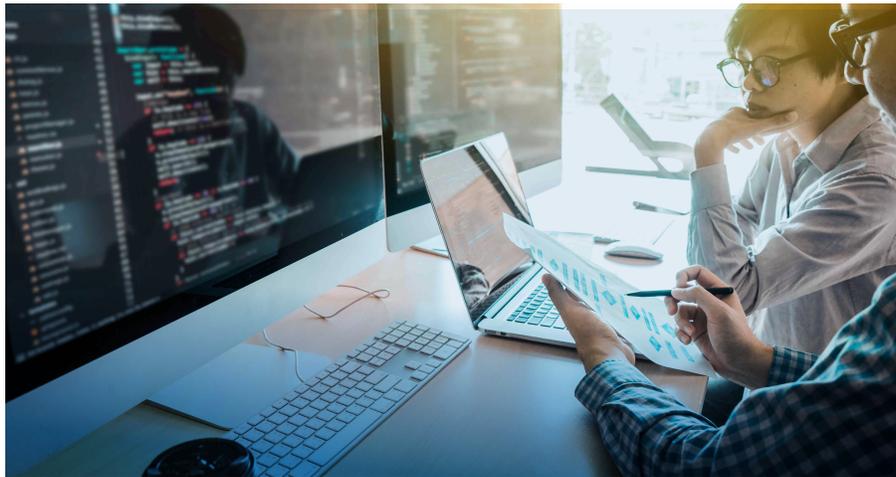
Through membership of the OpenJDK Vulnerability Group, Azul can integrate security patches and backport them to older supported Java versions (currently JDK 6, 7, 8, 11 and 13) in advance of when Oracle releases their update. Since OpenJDK is an open-source project, all other changes (bug fixes, etc.) are accessible through the source code to the current project and can be backported in advance. This enables Azul to deliver updates to Zulu Enterprise very shortly after the Oracle release. A Service-Level Agreement (SLA) for how quickly this happens is part of the Zulu Enterprise contract and, to date, Azul has always delivered updates to customers effectively and simultaneously with Oracle. (In this case, simultaneously means within an hour). Many of Azul's engineers are ex-Sun Microsystems or ex-Oracle and have extensive experience in developing and maintaining the Java platform.

Azul offers two versions of each update, matching Oracle's deliverables. These are the Critical Patch Update (CPU) and Patch Set Update (PSU). The CPU contains only the changes relevant to security vulnerabilities. This can be used to roll out an update as quickly as possible to address a critical security issue with minimal potential impact on application stability. The PSU contains the CPU changes plus any other bug fixes, minor enhancement, etc. More extensive testing of the PSU can be performed to ensure the stability of applications before being deployed.

Zulu Enterprise provides a wide range of processor architecture and operating system support: Intel 64-bit Windows, Linux and Mac, Intel 32-bit versions for Windows and Linux, Arm 32 and 64-bit versions, Power PC and MIPS.

Zulu Enterprise provides all standard installation formats: zip archives, MSI files for Windows, RPM, DEB and tar.gz format for Linux and DMG for macOS. Repos are available for Linux for automated download as well as Docker images.

Azul provides a full support service for Zulu Enterprise. Customers can report issues with response times contractually defined. Should it be necessary to develop a fix to an issue Azul have engineering centres positioned such that work on a fix can



continue 24 hours a day with one group handing over to another in a different time zone when necessary.

Migrating from the Oracle JDK to Zulu Enterprise requires no modifications to code or recompilation. All command-line flags work identically (with the exception of commercial features in older versions of the Oracle JDK, such as Flight Recorder). If deployed to the same target directory, no changes are required to startup or deployment scripts.

Azul has over 600 customers of Zulu Enterprise (including several in the Fortune 100) who have migrated from the Oracle JDK. During all of those migrations no issue has been identified in Zulu Enterprise that, as a result of a difference with the Oracle JDK, prevented an application from working correctly. Azul's Zulu Enterprise provides a proven alternative to Oracle's Java offering at a significantly lower cost without sacrificing any of the benefits.

The Department of Defense (DOD) Enterprise Software Initiative (ESI) awarded Azul Systems, via immixGroup, an Enterprise Catalog/GWAC on NASA SEWP for all of the DOD, United States Coast Guard, and the Intelligence Community. DOD ESI does not endorse the use of any technology or brand-named solutions. Source selection decisions remain at the ordering level.

Highlighted Benefits of the Azul DOD ESI Contract

- Pre-Negotiated Cost Reducing Alternative to Oracle Java
- Intellectual Property Terms and Conditions were negotiated with DOD ESI
- Azul provides longer Java version support, than any other available option
- Contract leverages OpenJDK to avoid vendor lock-in

Contract Information:

NASA SEWP Agency Catalog for the DoD Enterprise Software Initiative (ESI)

<https://www.esi.mil/contentview.aspx?id=1045>

DOD ESI Contacts:

Dennis Fellin - Dennis.fellin@navy.mil
717.329.6588

Azul Systems – Federal Contacts:

John Stopper – Vice President of Sales
jstopper@azul.com

Charles Henrich – Director of Federal Sales
chenrich@azul.com

Azul Systems, Inc.
385 Moffett Park Drive, Suite 115
Sunnyvale, CA 94089 USA
+1.650.230.6500
www.azul.com
info@azul.com